REMARKS

Applicants appreciate the Examiner's thorough consideration provided to the present application. Applicants appreciate the courtesies extended to Applicants during the personal interview of December 3, 2002 (2:00 p.m. with MTS). Claims 1-6, 11-14 and 17-21 are currently pending in the instant application. Claims 1, 8, 19 and 21 are independent. Claim 16 has been cancelled. Claims 1, 8, 17 and 19-21 have been amended.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-6, 8 and 11-14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Halleck (U.S. Patent No. 1,401,717). Claims 1-6, 8, 11-14 and 16-18 and 20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Maniscalco (U.S. Patent No. 1,979,975). Claims 1-4, 6, 8 and 11-14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Harper (U.S. Patent No. 4,642,149). These rejections are respectfully traversed.

In light of the foregoing amendments to the claims, Applicants respectfully submit that all of the rejections have been obviated and/or rendered moot. Since the prior art of record fails to teach or suggest each and every element of the claimed invention, the Examiner's rejections under 35 U.S.C. § 102(b) should be withdrawn.

In contrast to the prior art of record, the claimed invention permits the creation of a series of cross-flow type heat exchangers 50 within a common

heat exchanger assembly. The Examiner will appreciate that this controlled isolation of the shell side fluid flow permits a greater control of the individual stages (heat exchangers) created by the isolation and flow direction control plates. For example, the tube side fluid flow can actually be isolated by the claimed invention to include a variety of separate fluid mediums, e.g., a first fluid in a first tube bundle, a distinct, second fluid (liquid or gas) in a subsequent tube bundle, etc.

The following additional comments are provided with respect to each of the above-identified U.S. patents.

Maniscalco (U.S. Patent No. 1,979,975)

(THE ORIENTATION OF THE SLOTS WITH RESPECT TO THE SHELL SIDE AND TUBE SIDE FLOWS APPEARS TO BE THE MAJOR DIFFERENCE)

Harper (U.S. Patent No. 4,642,149)

(THE CLAIMED INVENTION INCLUDES A PLURALITY OF SLOTS, A PLURALITY OF PLATES, AND ORIENTATION OF SLOTS WITH RESPECT TO THE SHELL SIDE AND TUBE SIDE FLOWS—HARPER appears to have similarly arranged slot, but only one slot and one plate)

Halleck (U.S. Patent No. 1,401,717)

(HALLECK appears to have a plurality of slots and plates, including slots arranged normal to shell side flow, but not in parallel with the tubes, e.g., the tube side flow).

In accordance with the above discussion of the patents relied upon by the Examiner, Applicants respectfully submit that these documents, either in combination together or standing alone, fail to teach or suggest the invention as is set forth by the claims of the instant application.

Accordingly, reconsideration and withdrawal of the claim rejection are respectfully requested. Moreover, the Applicants respectfully submit that the instant application is in a condition for allowance.

As to the dependent claims, Applicants respectfully submit that these claims are allowable due to their dependence upon an allowable independent claim, as well as for additional limitations provided by these claims.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but rather to merely show the state-of-the-art, no further comments are necessary with respect thereto.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

In the event there are any matters remaining in this application, the Examiner is invited to contact Matthew T. Shanley, Registration No. 47,074 at (703) 205-8000 in the Washington, D.C. area.

Applicants respectfully petition under the provisions of 37 C.F.R. § 1.136(a) and § 1.17 for a one-month extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of **$110.00** is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

MARKED-UP VERSION OF AMENDMENTS

IN THE CLAIMS:

Claim 16 has been cancelled.

The claims have been amended as follows:

1. (Twice Amended) A heat exchanger assembly comprising:

a shell having a shell side fluid path;

a plurality of tubes;

a shell side fluid inlet;

a shell side fluid outlet, wherein a shell side fluid is capable of flowing between said shell side fluid inlet and said shell side fluid outlet in said shell side fluid path extending therebetween;

at least one tube side fluid inlet;

at least one tube side fluid outlet, said tubes extending between said tube side fluid inlet and said tube side fluid outlet, wherein said shell side fluid path extending between said shell side inlet and said shell side fluid outlet is arranged in a cross flow fluid arrangement with respect to each of said tube side fluid inlets and said tubes; and

a plurality of [at least one] isolation and flow direction control plates [plate] positioned normal to said shell side fluid [inlet] path and in parallel with said tube side fluid inlet and said tubes in the shell of the heat exchanger assembly for creating adjacent smaller heat exchangers, each of said isolation and flow direction control plates including

at least one fluid slot for permitting fluid communication between corresponding adjacent smaller heat exchangers, said fluid slots extending normal to said shell side fluid path and in parallel with said tubes [wherein shell side inlet and said shell side fluid outlet are arranged in a cross flow fluid path with respect to each of said tube side fluid inlets].

8. (Twice Amended) A method of controlling a fluid flow for a heat exchanger assembly, said heat exchanger assembly including a shell having a shell side fluid path; a plurality of tubes; a shell side fluid inlet; a shell side fluid outlet[;], wherein a shell side fluid is capable of flowing between said shell side fluid inlet and said shell side fluid outlet in said shell side fluid path extending therebetween; at least one tube side fluid inlet; at least one tube side fluid outlet, said tubes extending between said tube side fluid inlet and said tube side fluid outlet, wherein said shell side fluid path extending between said shell side inlet and said shell side fluid outlet is arranged in a cross flow fluid arrangement with respect to each of said tube side fluid inlets and said tubes; [wherein said shell side fluid inlet and said shell side fluid outlet are arranged in a cross flow fluid path with respect to each of said tube side fluid inlets,] said method comprising:

creating a plurality of smaller heat exchangers by providing [at least one] a plurality isolation and flow direction control plate in a shell side of the heat

exchanger assembly, wherein each of said isolation and flow direction control plates includes at least one fluid slot for permitting the fluid flow to pass through said isolation and flow direction control plate, said fluid slots extending normal to said shell side fluid path and in parallel with said tubes; and

isolating and directing the fluid flow on the shell side of the heat exchanger assembly between each of said smaller heat exchangers.

17. (Amended) The heat exchanger assembly according to claim 1, [further comprising a plurality of said isolation and flow direction control plates,] wherein at least one of said plurality of said isolation and flow direction control plates includes a plurality of said fluid slots, and said plurality of fluid slots include slots having different cross sectional areas.

19. (Amended) [The heat exchanger assembly according to claim 18,] A turbine assembly having an integral heat exchanger assembly, said heat exchanger comprising:

a shell having a shell side fluid path;

a plurality of tubes;

a shell side fluid inlet;

a shell side fluid outlet, wherein a shell side fluid is capable of flowing between said shell side fluid inlet and said shell side fluid outlet in said shell

side fluid path extending therebetween, wherein said shell side fluid outlet is [a] an inlet to said turbine assembly [inlet];

at least one tube side fluid inlet;

at least one tube side fluid outlet, said tubes extending between said tube side fluid inlet and said tube side fluid outlet, wherein said shell side fluid path extending between said shell side inlet and said shell side fluid outlet is arranged in a cross flow fluid arrangement with respect to each of said tube side fluid inlets and said tubes; and

a plurality of isolation and flow direction control plates positioned normal to said shell side fluid path and in parallel with said tube side fluid inlet and said tubes in the shell of the heat exchanger assembly for creating adjacent smaller heat exchangers, each of said isolation and flow direction control plates including

at least one fluid slot for permitting fluid communication between corresponding adjacent smaller heat exchangers, said fluid slots extending normal to said shell side fluid path and in parallel with said tubes.

20. (Amended) The method according to claim 8, wherein said isolation and flow direction control plate includes a plurality of said fluid slots, and said plurality of fluid slots include slots having different cross sectional areas.

21. (Amended) A method of controlling a fluid flow to a turbine assembly, wherein said turbine assembly includes an integral heat exchanger assembly, said heat exchanger assembly including a shell; a plurality of tubes; a shell side fluid inlet; a shell side fluid outlet; at least one tube side fluid inlet; at least one tube side fluid outlet; wherein said shell side fluid inlet and said shell side fluid outlet are arranged in a cross flow fluid path with respect to each of said tube side fluid inlets, said method comprising:

creating a plurality of smaller heat exchangers by providing at least one isolation and flow direction control plate in a shell side of the heat exchanger assembly, wherein each of said isolation and flow direction control plates includes at least one fluid slot for permitting the fluid flow to pass through said isolation and flow direction control plate;

isolating and directing the fluid flow on the shell side of the heat exchanger assembly between each of said smaller heat exchangers; and [The method according to claim 20, further comprising]

operatively connecting said heat exchanger assembly to an inlet of a turbine assembly, said fluid slots of said isolation and flow direction control plate positioned adjacent to said inlet of the turbine assembly.